CLAIMS

1. A tubular reaction vessel comprising a longitudinally-extending wall with a space thereinside, wherein a silicon deposition feedstock gas inflow opening and a deposited silicon discharge opening are provided at an upper portion and a lower end portion respectively, and a flow resistance-increasing region is created on a wall surface of the tubular reaction vessel that is contacted with a feedstock gas.

2. The tubular reaction vessel according to claim 1, wherein the flow resistance-increasing region is at least one of protrudent, concave and sloped regions.

3. The tubular reaction vessel according to claim 1, wherein the flow resistance-increasing region is a protrusion provided in the tubular reaction vessel, and the reaction vessel is reduced in thickness from the external wall in the protrusion-provided area.

4. The tubular reaction vessel according to claim 1, wherein the flow resistance-increasing region is a protrusion provided in the tubular reaction vessel, and the tubular

reaction vessel is arranged to be heated by a high frequency heating coil and includes means for reducing high frequency energy from the high frequency heating coil in the protrusion-provided area relative to the other area.

5. A process for producing silicon, comprising:

providing a tubular reaction vessel that comprises a longitudinally-extending wall with a space thereinside, wherein a silicon deposition feedstock gas inflow opening and a deposited silicon discharge opening are provided at an upper portion and a lower end portion respectively, and a flow resistance-increasing region is created on a wall surface of the tubular reaction vessel that is contacted with a feedstock gas;

introducing a silicon deposition feedstock gas containing a chlorosilane through the silicon deposition feedstock gas inflow opening; and

producing polycrystalline silicon from the chlorosilane-containing silicon deposition feedstock gas in the heated reaction vessel.

6. The process for producing silicon according to claim 5, wherein the flow resistance-increasing region is at least one of protrudent, concave and sloped regions.